What is claimed is:

1. An image processing system comprising:

(a) a search engine;

(b) an image analyzer coupled to said search engine, said image analyzer for comparing first and second images provided thereto from said search engine; and

(c) one or more feature modules coupled to one of said search engine and said image analyzer, each of said feature modules for providing to said image analyzer information specific to a particular application.

2. The system of Claim 1 further comprising an input system coupled to one of said search engine and said image analyzer, said input system comprising at least one of: a graphical user interface; a facsimile system; a camera system; a scanner; a network connection; and a video system.

3. The system of Claim 2 wherein each of said one or more feature modules defines at least one particular region of an image and at least one particular measurement to make on pixels within each of the at least one particular image region.

4. The system of Claim 3 wherein each of said one or more feature modules defines at least one measurement to make on one or more pixels in an image region neighboring the one particular image region.

5. The system of Claim 3 further comprising a storage device having at least one iamge stored therein coupled to one of said a search engine, said image analyzer and said feature module.

6. A process for comparing two images comprising the steps of:

(a) aligning a target image and a selected image each of the target and selected image having at least one property;

(b) dividing the selected image into a plurality of image regions each of the image regions having at least one property;

(c)   combining properties in predetermined ones of the plurality of image regions;

(d)   selecting a primary image region within the selected image;

(e)   selecting a target image region; and

(f)   comparing one or more properties of the primary image region within the selected image to a corresponding one or more properties in the target image region.

7.   The process of claim 6, further comprising the steps of:

(g)   assigning a score indicating the difference between the one or more properties in the primary image region within the selected image and the corresponding one or more properties in the target image region;

(h)   selecting a next region in the target image;

(i)   comparing one or more properties of the primary image region within the selected image to a corresponding one or more properties in the next target image region; and

(j)   assigning a score indicating the difference between the one or more properties in the primary image region within the selected image and the corresponding one or more properties in the next target image region.

8.   The process of Claim 7 further comprising the step of repeating steps (h) – (j) for each of a predetermined number of regions in the target image.

9.   The process of Claim 8 further comprising the step of finding the best match between the primary image region and one of the predetermined regions in the target image.

10.   The process of claim 9, further comprising the steps of:
          selecting a next primary image region in the selected image; and
          repeating steps (h) – (j) for each desired primary image region.

11.   A method of manufacturing a printed circuit board comprising the steps of:

(a)   performing a manufacturing operation on a printed circuit board; and

(b)   inspecting the result of the manufacturing operation by comparing an image of the actual operation being performed to a target image of the manufacturing operation being inspected.

5   12.   The method of Claim 11 wherein said inspection step comprises the steps of:
capturing an image of a portion of the printed circuit board wherein said captured image portion includes an image of the printed circuit board having the manufacturing operation applied thereto;
selecting a region of the captured image;
10   aligning a target image and the selected region of the captured wherein the target image corresponds to an image corresponds to an image of a printed circuit board which has been properly manufactured in during that particular portion of the manufacturing process and wherein each of the target and selected images has at least one property;
dividing the selected image into a plurality of image regions each of the image
15   regions having at least one property;
combining properties in predetermined ones of the plurality of image regions;
selecting a primary image region within the selected image;
selecting a target image region; and
comparing one or more properties of the primary image region within the selected
20   image to a corresponding one or more properties in the target image region.

13.   The process of Claim 12, further comprising the steps of:
assigning a score indicating the difference between the one or more properties in the primary image region within the selected image and the corresponding one or more
25   properties in the target image region;
selecting a next region in the target image;
comparing one or more properties of the primary image region within the selected image to a corresponding one or more properties in the next target image region; and
assigning a score indicating the difference between the one or more properties in the
30   primary image region within the selected image and the corresponding one or more properties in the next target image region.

14.   The process of Claim 13 wherein for each of a predetermined number of regions in the target image the method further comprises the step of repeating the steps of: (a)selecting a next region in the target image; (b) comparing one or more properties of the primary image region within the selected image to a corresponding one or more properties in the next target image region; and (c) assigning a score indicating the difference between the one or more properties in the primary image region within the selected image and the corresponding one or more properties in the next target image region.

15.   The process of Claim 14 further comprising the step of finding the best match between the primary image region and one of the predetermined regions in the target image.

16.   The process of claim 15, further comprising the steps of:
        selecting a next primary image region in the selected image; and
        for each desired primary image region repeating the steps of: (a) selecting a next region in the target image; (b) comparing one or more properties of the primary image region within the selected image to a corresponding one or more properties in the next target image region; and (c) assigning a score indicating the difference between the one or more properties in the primary image region within the selected image and the corresponding one or more properties in the next target image region.

17.   The process of Claim 16 wherein the manufacturing operation corresponds to a solder paste application step.

18.   The process of Claim 16 wherein said manufacturing operation corresponds to a component placement operation.

19.   The process of Claim 16 wherein said manufacturing operation corresponds to a solder reflow operation.

20.   The process of Claim 16 wherein said manufacturing operation corresponds to a solder joint inspection operation.